Experion LX: Perfect Fit for Pharmaceutical Operations

Solution Note

Honeywell's Experion® LX Distributed Control System (DCS) is a perfect fit for pharmaceutical and biotech operations of any size or scope. With this solution, multi-purpose facilities can achieve significant improvements to reliability, agility and efficiency with lower lifecycle costs.

To stay competitive, today's pharmaceutical firms must safely and consistently manufacture high-quality products on time and within licensed processes, while maintaining GMP-compliant conditions and minimizing batch-to-batch variability. They are encouraged to comply with international initiatives such as the PIC/S GMP Guide and the ICH Guidelines.

Drug companies require agility across all aspects of their operations. Laboratory findings must be transferred as quickly as possible to the production environment, and production plants need the flexibility to keep pace with dynamic market conditions.

Although Distributed Control System (DCS) technology offers advantages for modern biopharmaceutical operations, the right solution should be flexible, scalable and purpose-built with the latest technology.

Honeywell offers the Experion® LX DCS as a "perfect fit" for differently sized facilities. With this scalable control system, various functions and applications aimed at optimizing performance are inherently available in the context of pharmaceutical operations. Data from these functions is also presented in an integrated operating environment.

FEATURES & BENEFITS

- Expedite commissioning and start up
- Increase batch execution availability
- Increase system throughput
- Improve operator effectiveness
- Expand production capacity

- Improve reproducibility of processes
- Decrease process and quality variability
- Optimize paperless operation
- Simplify configuration of continuous and batch control

- Streamline recipe development and verification
- Minimize downtime
- Lower maintenance costs
- Reduce lifecycle costs
- Expedite ;payback on automation investments

Solution

From production management and batch control, to the diverse formulation process, biopharmaceutical facilities are highly complex and multi-dimensional with numerous critical operations. They need plant-wide integration and lifecycle optimization, including real-time and interactive access to data used for planning, managing and optimizing production.

Typical applications within pharmaceutical plants include:

- Batch automation
- Procedural operations
- Qualification and version control
- Electronic records/signatures
- Recipe management
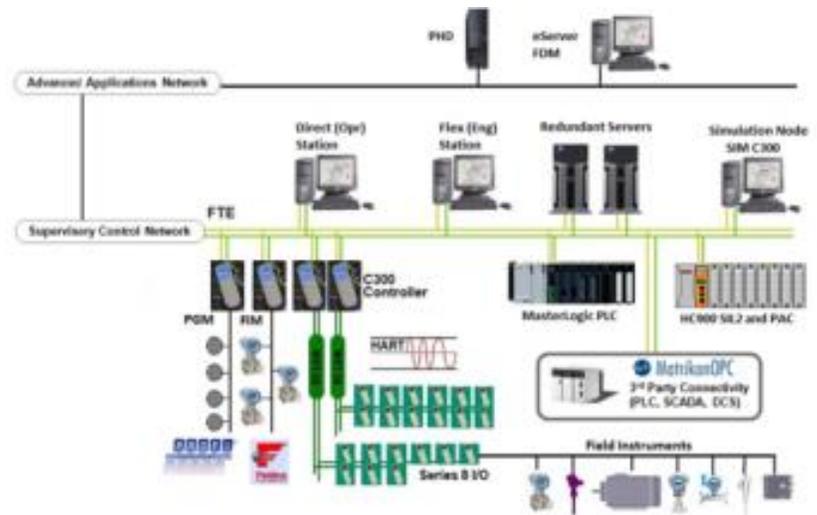- Pilot plants
- Synthesizing/fermentation

The rewards from investing in automation can be substantial, such as considerable increases in productivity and improved safety, with reduced costs. However, there are common industry-wide issues associated with implementing new technology, which can have varying impacts on the success of pharmaceutical producers.

For many pharmaceutical plants, making the right investment in automation can be difficult. There may be sites that cannot justify the cost and complexity of a full DCS. There are also plants that have adopted Programmable Logic Controllers (PLCs) but are a better fit for a DCS.

Honeywell is a leading supplier of control solutions for the Pharmaceutical and Life Sciences industries, with a worldwide presence and broad application experience. We offer the Experion® LX DCS as a "perfect fit" for differently sized facilities. With this scalable control system, various functions and applications aimed at optimizing performance are inherently available in the context of pharma operations. Data from these functions is also presented in an integrated operating environment.

Experion LX is based on Honeywell's award-winning Experion Process Knowledge System (PKS), which is recognized for its advanced technology, robust software packages and monitoring, built-in redundancy, ability to integrate with Manufacturing Execution System (MES) platforms, and full validation support.

Experion LX leverages Honeywell's proven track record in DCS applications, and is a mature system with well-defined function blocks and highly proven technology. It is a unique automation solution superior to traditional PLCs for many operations.

Experion LX system architecture

Experion LX's innovative technologies are vital to improved plant performance and better business results, and can be implemented in a way that suits your individual site.

- Tightly integrated DCS and Supervisory Control and Data Acquisition (SCADA)
- Honeywell's Experion C300 controller for robust and versatile control
- C300 simulation for proving out control strategies
- Honeywell's patented, high-performance Fault Tolerant Ethernet (FTE) control network
- Optional redundancy at all levels: server, network, C300 controller and Series 8 I/O modules
- Direct Station never loses view or control of field devices
- Honeywell's patented, revolutionary Profit® Loop algorithm for predictive control
- Unique I/O module design for compact footprint, and efficient installation and maintenance
- Improve efficiency and reduce configuration time by up to 30% with Honeywell's enhanced Control Builder and newly styled Human-Machine Interface (HMI)

- IEEE 1588 Precision Time Protocol (PTP) support for system-wide SOE
- Powerful reporting tool for debugging and system maintenance
- Smart device integration through industry-standard protocols such as HART®, FOUNDATION™ fieldbus, PROFIBUS and Modbus®
- Asset management using Honeywell's integrated Field Device Manager (FDM) software
- Enhanced features with Pan and Zoom Displays, Equipment Templates, Dynamic Scanning, etc.
- Extensive integration of PLCs, DCSs, Remote Terminal Units (RTUs), drives, safety systems and weigh scales through rich SCADA capability and Matrikon OPC servers
- Honeywell's flexible Distributed Server Architecture (DSA) for integration of processes across multiple units, control rooms or geographically separated locations for optimum flexibility and system maintenance
- Virtualization solutions intended to improve performance and reliability in the industrial automation domain

Experion® LX's Qualification and Version Control System (QVCS) capabilities establish well-enforced lifecycle and implementation procedures and reduce the number of Standard Operating Procedures (SOPs) while eliminating manual signatures and paper trails. They support U.S. Food and Drug Administration (FDA) Title 21 Code of Federal Regulations (21 CFR Part 11) compliance and provide the following key benefits:

- User-defined development cycle for easy process control management and compliance
- Comprehensive version history and audit trail for system protection and accountability
- User-defined electronic signature qualification

This solution also provides detailed check-in and checkout facilities to protect the change control process.

Features

Experion LX enables biopharmaceutical companies to realize the performance advantages of a true distributed control solution at a reduced cost. This purpose-built DCS can be tailored to fit your specific control applications — regardless of their scope — and extended at any time to include personnel and assets, and even to integrate entire business operations.

Built-in Function Blocks: Designed to suit pharmaceutical applications and DCS requirements with specific function blocks, as well as support Custom Algorithm Blocks for building user-defined algorithms and data structures.

Rich Function Libraries: Easily create control strategies with the single, integrated Control Builder tool for continuous, sequential, batch and model-based control.

Pre-built Templates: Solution pack with a wide range of templates ideal for general control applications.

Application Development Toolkit: Develop custom applications that communicate with Experion LX through the Network Application Programming Interface (API), Server API, Open Database Connectivity (ODBC) Data Exchange, Server Automation Object, etc.

FTE: Reliable, industrial-grade network providing multiple communication paths between nodes — thus eliminating all single points of failure —and utilizing commercial Ethernet technology for lower costs.

C300 Controller: The Experion C300 controller operates Honeywell's deterministic Control Execution Environment (CEE) software, which executes control strategies on a consistent and predictable schedule.

Direct Station: Powerful operator station functions as a client to the Experion LX Engineering Server, and at the same time, allows direct access to the C300 controller for process data, alarms and messages.

Safe Operations: In collaboration with the Abnormal Situation Management (ASM®) Consortium, Honeywell has developed safe operator functions like Procedural Operations to reduce incidents related to improper execution of operating procedures. It has also created alarm handling and display layouts to improve overall operator response to abnormal conditions.

Honeywell's robust Experion C300 controller

With Experion LX, pharmaceutical manufacturers can achieve significantly enhanced batch capabilities. They can run an S88-compliant batch system entirely on Experion LX's C300 controller, providing faster and more reliable batch operations compared to a conventional server-based system. Class-based recipes enable reuse of recipes and help reduce the cost of recipe engineering, maintenance, and testing.

Specific benefits of this approach include:

- Increased batch execution availability by executing a complete procedure in a redundant controller environment
- Increased throughput by reducing batch execution times and latency between applications levels
- Improved operator usability through display integration and interactive instructions
- Covers all levels of sequence functionality in the ISA S88 model
- Reduces recipe maintenance through equipment-independent master recipes

In addition, Experion LX provides a comprehensive set of SCADA capabilities, including new equipment-based configuration to dramatically reduce engineering effort.

Honeywell's HMIWeb Solution Pack also provides a ready-to-use library of standardized objects to build ASM®-compliant displays, enabling quick project implementation and effective plant operation.

By employing Experion LX's tightly integrated architecture, users only need one server or a pair of servers for both DCS and SCADA systems. No additional hardware costs are necessary for integrating SCADA functions or third-party systems.

The Experion LX solution also allows pharmaceutical operations to implement centralized or remote control of geographically separated segments of production through its DSA. No additional hardware and networks are required to connect multiple control systems; users can leverage integrated engineering configuration, as well as greater flexibility to implement control where they want it.

Why Honeywell?

Choose Experion LX and know that Honeywell stands behind you over the life of your investment. Our channel partners are fully trained, authorized and experienced to implement and support your project — whether small or large, new or an expansion. You can rely on readily available local service when you need it.

In addition, Experion LX users have full access to Honeywell's Global Technical Assistance Center (GTAC) for product support and consulting. Our experts can help you resolve issues in a timely manner and keep your system running at peak performance.

For More Information

To learn more about how Honeywell's Experion LX solution can optimize your performance, visit our website www.honeywellprocess.com or contact your Honeywell account manager.

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